

REMARKS

Claims 1-3, 5-23, and 25-28 are pending in this application. Entry of this Amendment is respectfully requested. It is respectfully submitted that this amendment places all of the claims in condition for allowance.

The Rejections under Prior Art

1. Claims 1-3, 5, 7, 9-13, 16-23 and 25-28 are rejected under 35 U.S.C. §102(b) as being anticipated by either U.S. Pat. No. 6,358,486 ("Shan et al. '486") or WO 00/15551.

2. Claims 1-3, 5, 7, 9-13, and 16-21 are rejected under 35 U.S.C. §102(b) as being anticipated by WO 00/15551.

3. Claims 1-3, 5, 7, 9-13, and 16-21 are rejected under 35 U.S.C. §102(a, e) as being anticipated by any one of U.S. Pat. No. 6,906,208 ("Shan et al. '208"), 6,814,950 ("Shan et al. '950"), WO 2004/026473, or WO 2004/052537.

4. Claims 1-3, 5, 7, 9-13, 15-23, and 25-28 are rejected under 35 U.S.C. §102(a, e) as being anticipated by either U.S. Pat. No. 7,084,087 ("Shan et al. '087").

5. Claims 6, 8, and 14 are rejected under 35 U.S.C. §103(a) as being obvious over any one of Shan et al. '263, Shan et al. '087, Shan et al '486, Shan et al. '208, Shan et al. '950, WO

00/15551, WO 2004/026473, or WO 2004/052537 in view of U.S. Pat. No. 5,273,736 ("Nakagawa").

6. Claims 15 and 16 are rejected under 35 U.S.C. §103(a) as being obvious over any one of Shan et al. '263, Shan et al. '087, Shan et al. '486, Shan et al. '208, Shan et al. '950, WO 00/15551, WO 2004/026473, or WO 2004/052537 in view of U.S. Pat. No. 5,250,277 ("Kresge et al.").

7. Claims 4 and 17 are rejected under 35 U.S.C. §103(a) as being obvious over Laine et al. '298 in view of Shan et al. '263.

8. Claims 6 and 8 are rejected under 35 U.S.C. §103(a) as being obvious over Laine et al. '298 in view of Nakagawa.

All of these rejections are obviated by the amendments herein. The independent claims all substantially recite combining an inorganic compound with an organic complexing and pore-forming agent in the absence of water, reacting the inorganic compound with a complexing and pore forming agent at a complexation temperature in conjunction with the removal of water formed during the reaction to provide a water soluble complex which is thereafter dissolved in water to provide an aqueous mixture. Independent claim 14 also recites the addition of a microporous zeolite to the aqueous mixture. Support for these recitations can be found in the

specification, for example, at page 6 lines 12-16, page 7 lines 14-16, page 9 lines 6-8, page 10 lines 1-9, and Examples 1 and 3-6. A significant feature of the present invention is that an inorganic compound is first reacted with an agent which functions both as a complexing agent and a mesopore forming agent to form a water soluble complex. Use of inorganic compounds as starting materials is much less expensive than the use of organic sources of oxides such as TEOS and aluminum isopropoxide. Initially, the inorganic compound and the complexing and pore-forming agent are combined in the absence of water. Water tends to hydrolyze the complex more rapidly at higher temperatures and, therefore, any water formed during the complexation reaction is removed, for example, by evaporation. The complexation takes place at a temperature of at least about 150°C, which is above the boiling point of water. After the complexation has been completed the complex is dissolved in water to provide an aqueous mixture. A microporous zeolite, which is already preformed, can be added to the aqueous mixture of the complex. Thereafter, the complex is decomposed, for example by hydrolysis, to provide a mesoporous inorganic oxide framework with the microporous zeolite embedded in framework. This material can then be dried and the organic complexing and pore-forming agent can be removed and recycled. None of the cited references discloses or suggests all of the features of the independent claims.

Shan et al. '486 and WO 00/15551 disclose the preparation of a mesoporous inorganic oxide structure by starting with an organic precursor such as TEOS or aluminum isopropoxide. Complexing of an inorganic compound directly with a complexing/pore-forming agent is not disclosed and not possible with the methodology of these references. Firstly, complexing of the

inorganic compound cannot be done in the presence of water because water would tend to decompose the complex. Yet both of these references employ a water solution to carry out the synthesis. Secondly, the complexing is performed at a temperature of at least 150°C, which is above the boiling point of water, and which precludes the use of aqueous mediums in which to form the complex.

Shan et al. '208 and WO 2004/026473 are directed to a mesoporous material and use thereof for the selective oxidation of organic compounds. Nowhere do these references disclose or suggest combining an inorganic compound with a complexing/pore-forming agent in the absence of water, reacting the inorganic compound with a complexing and pore forming agent at a complexation temperature in conjunction with the removal of water formed during the reaction to provide a water soluble complex which is thereafter dissolved in water to provide an aqueous mixture.

Shan et al. '950 is directed to inorganic oxides with mesoporosity or combined meso and microporosity and a process for its preparation. As with the previously discussed references, this patent discloses the use of organic sources of inorganic oxides which are dispersed in an aqueous phase. See, col. 6, lines 22-45 and the Examples.

WO 2004/052537 is directed to a mesoporous material with active metals. In a process for preparing the catalyst, the first step as disclosed in this reference is to combine a silica source, heteroatom source, and templating agent in an aqueous solution to form a synthesis mixture. See, page 9, lines 4-6. Nowhere does this reference disclose or suggest combining an inorganic compound with a complexing/pore-forming agent in the absence of water, reacting the inorganic

compound with a complexing and pore forming agent at a complexation temperature in conjunction with the removal of water formed during the reaction to provide a water soluble complex which is thereafter dissolved in water to provide an aqueous mixture.

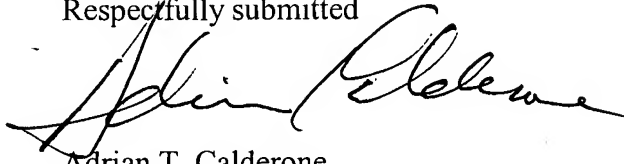
Shan et al. '087 is directed to a zeolite composite including a method for making it and use of it in catalytic applications. The mesoporous inorganic oxide support disclosed therein is prepared by heating a mixture of a precursor of the inorganic oxide in water with a templating agent. The source of inorganic oxide is organic. See, col. 3 lines 27-57 and col. 4, lines 6-14. Nowhere does this reference disclose or suggest combining an inorganic compound with a complexing/pore-forming agent in the absence of water, reacting the inorganic compound with a complexing and pore forming agent at a complexation temperature in conjunction with the removal of water formed during the reaction to provide a water soluble complex which is thereafter dissolved in water to provide an aqueous mixture.

None of the remaining references (Nakagawa, Kresge et al. and Laine) remedy the deficiencies of the Shan et al. references discussed above. Accordingly, all of the claims herein are submitted to be allowable over the cited prior art. Reconsideration and withdrawal of the references are respectfully requested.

CONCLUSION

For at least the reasons stated above all of the pending claims are submitted to be in condition for allowance, the same being respectfully requested.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'Adrian Calderone', written over the typed name.

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